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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/629,155

07/29/2003

Gopal B. Avinash

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EXAMINER

PATEL, KANJIBHAI B

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,155

Applicant(s)

AVINASH ET AL.

Examiner

Kanji Patel

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15 and 20 is/are rejected.
- 7) ☒ Claim(s) 14, 16-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/29/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. Information Disclosure Statement submitted on 7/29/03 has been considered by the examiner.

Drawings

2. Drawings filed on 12/2/03 have been approved by the examiner.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 recites the limitation of "said selecting step " in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-13, 15 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by, Ustuner et al. (US 6,423,003 B1).

For claim 1, Ustuner et al. disclose a method for image processing using signal-to-noise ratio dependent filtering (Figure 1), said method comprising:

measuring noise in an image (noise image estimator 22 in Figure 1; step 42 in Figure 2; column 2 line 63 to column 3 line 14);

computing a signal-to-noise ratio for the image (24 in Figure 1 and step 44 in Figure 2; column 3 line 40 to column 4 line 14);

selecting parameters for an image filter framework based on the signal-to-noise ratio (column 1, lines 53-64; the coefficients of a filter provide parameters of an image filter which vary as a function of SNR; column 5 line 30 to column 6 line 16); and

processing the image in the filter framework using the parameters (output of block 24 is applied to an image processor for image processing; column 5 line 30 to column 6 line 16).

For claims 2, 7 and 20, Ustuner et al. disclose the method, wherein said selecting step further comprises selecting parameters based on user preference (column 1, lines 40-52; adaptive processing in filtering is inherently performed by a user using imaging parameters).

For claims 3, 8 and 13, Ustuner et al. disclose the method, wherein said selecting step further comprises selecting locally (column 4, lines 1-7; local SNR is measured using local means or parameters) and globally varying parameters (column 4, lines 54-61; focusing techniques can provide globally varying parameters).

For claim 4, Ustuner et al. disclose the method of claim 1, wherein said computing step further comprises computing a signal-to-noise ratio for a region in the image (column 3 line 40 to column 4 line 14).

For claim 5, Ustuner et al. disclose the method, further comprising:

computing a plurality of signal-to-noise ratios for a plurality of regions (column 4, lines 40-46; equations 3 and 4 provides a point SNR and local SNR; column 6, lines 20-25) in the image; and

selecting parameters for the image filter framework based on the plurality of signal-to-noise ratios (column 1, lines 53-64; the coefficients of a filter provide parameters of an image filter which vary as a function of SNR; column 5 line 30 to column 6 line 16).

For claim 6, Ustuner et al. disclose a method for regional filtering of an image (Figures 1-2), said method comprising:

computing at least one signal-to-noise ratio for at least one region of an image (column 3 line 40 to column 4 line 14);

determining a filter parameter for the at least one region based on the at least one signal-to-noise ratio (column 1, lines 53-64; the coefficients of a filter provide parameters of an image filter which vary as a function of SNR; column 5 line 30 to column 6 line 16); and

processing the at least one region of the image based on the filter parameter (output of block 24 is applied to an image processor for image processing; column 5 line 30 to column 6 line 16).

For claim 9, Ustuner et al. disclose the method of claim 6, further comprising the step of calculating noise in the image (column 2 line 63 to column 3 line 14).

For claim 10, Ustuner et al. disclose the method of claim 9, wherein said calculating step further comprises calculating noise in the image based on a difference

between the image and a smoothed image (column 3, lines 42-65; low-pass filtering provides smoothed image).

For claim 11, Ustuner et al. disclose an image processing system for signal-to-noise ratio dependent processing of an image (Figures 1-2), said system comprising:

a signal-to-noise ratio processor for determining a signal-to-noise ratio for an image (column 3 line 40 to column 4 line 14);

a parameter selection unit for selecting at least one filter parameter based on said signal-to-noise ratio (column 1, lines 53-64; the coefficients of a filter provide parameters of an image filter which vary as a function of SNR; column 5 line 30 to column 6 line 16); and

an image filter for filtering said image based on said at least one filter parameter (output of block 24 is applied to an image processor for image processing; column 5 line 30 to column 6 line 16).

For claim 12, Ustuner et al. disclose the system of claim 11, wherein the signal-to-noise ratio processor determines at least one signal-to-noise ratio for at least one region in said image (column 3 line 40 to column 4 line 14).

For claim 15, Ustuner et al. disclose the system, wherein said globally varying parameters include a focus parameter (column 4, lines 58-61).

Allowable Subject Matter

5. Claims 14 and 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other prior art cited

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kojima (US 6,643,011 B2) discloses SNR calculation method and optical spectrum measurement apparatus.

Gindele (US 6,907,144 B1) discloses a noise reduction method, apparatus, and program for digital image processing.

Pettersson et al. (US 6,341,180 B1) disclose an image content auto focus for microscopy using a noise-insensitive focus filter.

Cooper (US 4,573,070) discloses a noise reduction system for video signals.

Guissin (US 5,442,462) discloses an apparatus and method for smoothing images.

Tal et al. (US 5,909,384) disclose a system for dynamically adapting the length of a filter.

Khani (US 6,122,405) discloses an adaptive filter selection for optimal feature extraction.

Kim et al. (US 5,653,234) disclose a method and apparatus for adaptive spatial image filtering.

Simopoulos et al. (US 6,579,238 B1) disclose a medical ultrasonic imaging system with adaptive multi-dimensional back-end mapping.


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Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kanji Patel whose telephone number is (571) 272-7454. The examiner can normally be reached on Monday to Friday from 7:30 a.m. to 5:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bella, Matthew can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kanji Patel
Art Unit 2624
11/26/06


KANJIBHAI PATEL
PRIMARY EXAMINER